

Science Flight Report

Operation Ice Bridge August 2010



UAF Alaska Flight No 5
Mission Plan: Bering Glacier

Flight Report Summary

Aircraft	DHC-3 Otter
Flight Number	UAF-5
Flight Request	10M014
Flight Hours	5.8
Take off time	11:54:00.00 Z from Ultima Thule Outfitters Lodge
Landing time	17:43:00.00 Z at Ultima Thule Outfitters Lodge
Date	Saturday, Aug 23 2010, Day of Year 235
Purpose of Flight	LiDAR surveys of the St Elias Mtns. Glaciers, mostly the Malaspina/Seward and Icy Bay systems.
Aircraft Status	Airworthy.
Sensor Status	operational.
Significant Issues	None.
Accomplishments	<ul style="list-style-type: none"> • LiDAR centerline profiles of the Tana, Jefferies, Columbus, Seward, Malaspina, Grotto, Tsaa, Guyot, Tyndall and Yahtse Glaciers.
Planned Events	<ul style="list-style-type: none"> • The next surveys will continue to the east of this flight, mostly in the Yakutat Icefield.

Science Data Report Summary

This mission performed LiDAR surveys of glaciers within the Malaspina/Seward and Icy Bay areas of southern Alaska. LiDAR data were collected at a height of 500-650 meters above the glacier surface, and mapped a 0.5 km wide swath along the centerline of the glaciers. This swath map consists of measurements from individual laser shot points on a roughly 1 meter by 1 meter grid. The individual point measurements of the glacier surface latitude, longitude and elevation have an accuracy of approximately ± 10 cm.

Geographic keywords: (Malaspina Glacier, Icy Bay, SE Alaska)

Repeat Mission: yes (2009, 2007, 2005, 2003, 2000, 1995)

Instrument	Instrument Operational		Data Volume	Instrument Issues
	Target area	Entire Flight		
UAF LiDAR	Yes	No	1.525 GB in raw binary format	None
GPS	Yes	Yes	817 MB in raw binary format	None
IMU	Yes	Yes	189 MB in raw binary format	None

Mission Log (Chris Larsen)

Today's mission is a LiDAR survey of glaciers within the St. Elias Mountains of south central Alaska, specifically those glaciers that are part of or near the Seward/Malaspina system and within Icy Bay. The Seward/Malaspina Glacier is one of the longest and largest mountain glaciers in North America. Icy Bay contains five tidewater calving glaciers, with lengths up to 70 km.

The weather was very calm, with no wind at any altitude flown.

Individual instruments on board the aircraft:

LiDAR: The UAF LiDAR systems worked well.

GPS: System worked normally. No problems.

IMU: System worked well. No issues.



Figure 1: LiDAR ground tracks over the Tana, Jefferies, Columbus, Seward, Malaspina, Grotto, Tsaa, Guyot, Tyndall and Yahtse glaciers.



Figure 2: Folded moraines on the Malaspina piedmont.



Figure 3: Pilot Paul Claus grinding away at the 50 minute long flight line down the Seward/Malaspina.